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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,030	08/30/2001	Takafumi Matsumura	381AS/50350	7268

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EXAMINER

DOUGHERTY, ANTHONY T

ART UNIT PAPER NUMBER

2863

DATE MAILED: 01/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/942,030

Applicant(s)

MATSUMURA ET AL.

Examiner

Anthony T. Dougherty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-27, 28/17, 29-37, 40, 41, 44, and 45 is/are allowed.
- 6) ☒ Claim(s) 1-14, 28/13, 38, 39, 42, 43, and 46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 38, 39, 42, and 43 rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,911,238 to Bump et al.

With regard to claims 38, 39, 42, and 43 Bump et al. discloses a gas flow detection circuit for outputting a voltage signal representing gas flow (see column 8 line 17 through line 18), a digital adjusting circuit for adjusting the detected gas flow signal (see column 8 line 20 through line 21 and column 8 line 24 through line 35), a programmable storage device for storing parameters related to the digital adjustment (see column 8 line 26 through line 31), and a data input/output circuit for writing adjust data to and from internal circuitry to the outside (see column 14 line 34 through line 41).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. Claims 1, 2, and 46 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,911,238 to Bump et al. in view of U.S. Patent No. 5,994,892 to Turino et al.

With regard to claims 1, 2, and 46 the primary reference to Bump et al. discloses a gas flow detection circuit for detecting a current and voltage of a resistor installed in a gas passage (see column 6 line 13 through line 18 and column 8 line 17 through line 18), noise reduction circuitry (see column 14 line 34 through line 41), a digital conversion circuit for converting the output of a gas flow detection into a digital signal (see column 8 line 20 through line 21), and a digitally adjusting circuit for outputting a voltage (see column 8 line 24 through line 35), and an integrated circuit substrate (see Figure 5 reference numeral 122), it is also inherent to Bump et al. that a reference voltage be supplied from a regulator circuit to the digital conversion means since any digital conversion means must have a reference voltage supplied from a regulator to do the conversion. However, Bump et al. fails to explicitly disclose a noise reduction circuit for reducing external noise induced in a power supply line for supplying electrical power to a gas flow meter.

The secondary reference to Turino et al. discloses a noise reduction circuit for reducing external noise induced in a power supply line (see column 16 line 62 through column 17 line 23) for supplying electrical power to a gas flow meter (see abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Bump et al. to include a noise reduction circuit for reducing external noise induced in a power supply line.

Accordingly, such a modification would have been obvious since Turino et al. teaches that noise on a power line affects reliable operation of the meter to which power is supplied (see

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Turino et al. column 17 line 19 through line 21), thereby suggesting the obviousness of the modification.

3. Claims 3-14 and 28/13 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,911,238 to Bump et al. in view of U.S. Patent No. 5,994,892 to Turino et al. as applied to claims 1 and 2 above, and further in view of "Road Vehicles – Electrical Disturbance by Conduction and Coupling", International Standard, June 1, 1990 (hereinafter International Standard), further in view of Japanese Patent No. JP9307361 to Naomi.

With regard to claims 3-14, and 28/13, the primary reference to Bump et al. discloses a gas flow detection circuit for detecting a gas flow through a gas passage, an adjusting circuit for adjusting an output characteristic, and a programmable storage device for storing parameters related to the digital adjustment (see column 8 line 1 through line 41; column 10 line 31 through line 51).

The secondary reference to International Standard discloses recommendations for over-voltage protection and noise reduction (see section 5).

The tertiary reference to Naomi discloses another over-voltage protection circuitry (see Figure 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Bump et al. by including over-voltage protection and noise reduction circuitry.

Accordingly, such a modification would have been obvious since both International Standard and Naomi teach methods in the art of eliminating noise to get more accurate results

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(see International Standard section 5.1) and providing over-voltage protection to keep circuitry working even when it is subjected to voltage parameters it was not designed for (see Naomi abstract), thereby suggesting the obviousness of the modification.

Allowable Subject Matter

4. Claims 15-27, 28/17, 29-37, 40, 41, 44, and 45 allowed.

5. The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claims 15-27, 28/17, and 29-37 is the inclusion of the limitations of determining a gas flow passage by a level of a digital signal inputted into an adjusting circuit divided into two or more ranges and an individual adjustment calculation formula is set for the digital signal at each of the divided ranges, the adjusting circuit further selecting the adjustment calculation formula according to the range of the digital signal inputted into the adjusting circuit and performing adjustment calculation by applying the selected formula to the inputted digital signal to produce an output value. It is these limitations found in each of the claims, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

With regard to claims 40 and 41, the inclusion of an adjusting circuit which receives from a detected gas flow a ratiometric analog output, a non-ratiometric analog output, and a digital output and selects one by a means provided in the adjusting circuit distinguishes these claims over the prior art.

With regard to claim 44, the inclusion of a digital conversion circuit with means for selecting a single-phase or differential input distinguishes this claim over the prior art.

With regard to claim 45, the inclusion of an analog conversion circuit for receiving an adjusted digital signal and converting it into an analog signal where the analog conversion circuit is driven by a voltage based on an external reference voltage provided by a voltage follower arranged between a reference voltage terminal and a power supply terminal, these limitations in combination distinguishes this claim over the prior art.

Response to Arguments

6. Applicant's arguments with respect to claims 1 and 2 beginning in paper no. 12 on page 16 paragraph 5 and continuing through page 17 paragraph 2 have been considered but are moot in view of the new ground(s) of rejection.

7. Applicant's arguments, see paper no. 12 page 17 beginning in paragraph 3 and continuing through page 18 paragraph 1, filed 5/1/03, with respect to claims 15-27, 28/17, and 29-37 have been fully considered and are persuasive. The rejection of claims 15-27, 28/17, and 29-37 has been withdrawn.

8. Applicant's arguments filed 5/1/03 in paper no. 12 on page 18 paragraph 2 have been fully considered but they are not persuasive. The digital communication system shown Bump et al. in Figure 5 reference numeral 300 to the processor allow for updating of the data stored within the processor as claimed by the current application (see Bump et al. column 10 line 31 through line 50). Furthermore, it is inherent that at least one external communication terminal would have to be provided in order for this to work. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide more than one communication terminal to allow for communication since it has been held that the mere

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duplication of the essential working parts of a device involves routine skill in the art. See *St. Regis Paper Co. v Bernis Co.*, 193 USPQ 8.

9. Applicant's arguments filed 5/1/03 in paper no. 12 beginning on page 18 paragraph 3 and continuing through page 18 paragraph 4 have been fully considered but they are not persuasive. It is inherent to Bump et al. that a voltage supply path be available to power the microprocessor (see Bump et al. Figure 5.) and to also power the other devices such as a control drive or pressure sensor (see Bump et al. Figure 5) which by choice of component selection could require different voltages. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide more than one voltage supply path to allow for supplying different voltages since it has been held that the mere duplication of the essential working parts of a device involves routine skill in the art. See *St. Regis Paper Co. v Bernis Co.*, 193 USPQ 8.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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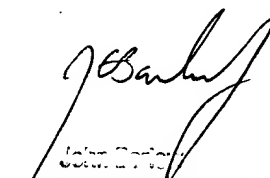
however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony T. Dougherty whose telephone number is (703) 305-4020. The examiner can normally be reached on Monday through Friday from 8 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on (703) 308-3126. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


atd


John E. Barlow
Supervisory Patent Examiner
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